

in drill string torque results in said relay supplying a drill strings control signal that operates said drill strings controller to effect a decrease in the rate of release of said drill string.

4. (amended) [An] The automatic drilling system [for automatically regulating the releasing of the drill string of a drilling rig during the drilling of a borehole,] according to claim 1 further comprising:

a drill string RPM sensor;

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cont.  
a drill string RPM regulator coupled to said drill string RPM sensor, said drill string RPM regulator measuring changes in drill string RPM and outputting a signal representing those changes;

a relay coupled to said drill string RPM regulator, said relay responsive to the output signal of said drill string RPM regulator to supply a drill strings control signal at an output thereof; and

a drill strings controller coupled to said relay wherein an increase in drill string RPM results in said relay supplying a drill strings control signal that operates said drill strings controller to effect an increase in the rate of release of said drill string and a decrease in drill string RPM results in said relay supplying a drill strings control signal that operates said drill strings controller to effect a decrease in the rate of release of said drill string.

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128. [A] The method according to claim 1 further [for automatically regulating the release of the drill string of a drilling rig drill,] comprising the steps of:

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measuring drill string torque;

producing a signal in response to changes in drill string torque, said signal representing the changes in drill string torque; and

relaying said signal to a drill string controller;

controlling said drill string controller to increase the rate

of release of said drill string when said signal represents a decrease in drill string torque and to decrease the rate of release of said drill string when said signal represents an increase in drill string torque.

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[A] The method according to claim 14 further [for automatically regulating the release of the drill string of a drilling rig drill,] comprising the steps of:

measuring drill string RPM;  
producing a signal in response to changes in drill string RPM,  
said signal representing the changes in drill string RPM;  
relaying said signal to a drill string controller; and  
controlling said drill string controller to increase the rate  
of release of said drill string when said signal  
represents a increase in drill string RPM and to decrease  
the rate of release of said drill string when said signal  
represents an decrease in drill string RPM.

✓ In claim 5, line 24, after the ";" insert --and--.

✓ In claim 6, line 25, after the ";" insert --and--.

✓ In claim 7, line 7, after the ";" insert --and--.

#### REMARKS

The specification stands objected to under 35 USC §112, first paragraph. Claims 1-11 and 15-18 stand rejected under 35 USC §112, first paragraph. Claims 1-11 and 15-18 further stand rejected under 35 USC §103 by Ball in view of Rogers and further in view of Gatlin.

Applicant's attorney wishes to thank Examiner Tsay for the courteous and helpful telephone interviews conducted during the prosecution of the referenced application. In accordance with the request of Examiner Tsay, Applicant submits the specification for an actual drilling operation in the form of a daily drilling record (see Exhibit A). Before describing the operation of the automatic driller with reference to an actual drilling operation, Applicant would like to point out that the parameters disclosed in the referenced application are not necessarily interrelated. For

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